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June 28, 2013

Office of Environmental Information
(Mail Code: 28221T)
Docket #EPA-HQ-ORD-2013-0189
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Re: Docket ID No. EPA-HQ-ORD-2013-0189: Comments of Scientific and Technical Experts

Dear Sir or Madam:

On behalf of the Pebble Limited Partnership ("PLP"), I submit these technical comments on the April 30, 2013 U.S. Environmental Protection Agency's ("EPA's") report entitled "An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska (Second External Review Draft)" ("the Assessment").

Prior Public Comments

While EPA asserts that the Assessment has been revised, in part, to reflect comments received on the first draft, EPA has not produced a registry of responses to those comments. The EPA states that an additional approximately 83,000 comments have been made as of May 19, 2013 for the revised second draft of the Assessment, but only a little over 1,000 of them have been posted. The EPA has stated that it will create a separate document providing responses to all comments which will accompany the final assessment when it is released later this year. For the Assessment process to be truly transparent, as EPA represents, the comments on both the First draft and Second draft Assessments and EPA's responses should be made public.

Based on a brief review of the posted comments, it is evident that more than 60 percent of the comments are from people who live in the lower 48 and are responding to letter writing campaigns from environmental groups that are actively opposing the Pebble Mine and offering an opportunity for free fishing trips to those who submit comments.

Less than 9 percent of the comments are from Alaskans, and less than 2 percent state that they are of Alaskan Native heritage, suggesting that the comments on the whole are not representative of the stakeholder groups most likely to be affected by a potential project in this region.

Because EPA has virtually ignored the advice on process the significant amounts of data given to EPA by one of the central stakeholders (PLP) for the Assessment process, PLP has depended on independent scientific and technical experts to evaluate the revised Assessment. These experts are nationally and internationally recognized scientists and engineers in the areas of environmental studies, permitting and impact assessment, mine planning and engineering, wetlands, fish biology and hydrology. In addition, they have extensive experience working in Alaska. Their full reviews are included as the following attachments to this comment letter:

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Reviewing Company	Areas of Assessment Reviewed	Attachment
Environ International Corporation	Degree to which technical comments submitted on 2012 First External Draft Bristol Bay Assessment were actually incorporated into revised Second Draft; and Technical Overview	1
Environmental Resources Management (ERM)	Technical Overview; and subject matter expert review on standard mining practices, pipeline release scenario and associated fate and transport analysis, subsistence uses, fish and fish habitat, and community health & safety.	2
Knight Piésold Ltd. (KPL)	Mine Scenarios, Tailings, Hydrology and Breach Analysis, Earthquake and Seismic Analysis, Water Management	3
HDR Inc.,	Wetlands impacts, Mitigation, and Stream Crossings and Culvert Failures	4

The resumes of the authors are attached to their respective reports.

Summary of Comments

Below we summarize a few of the main issues raised in the technical comments on the Assessment. Our scientific and technical comments are based on reviews by several scientific and technical experts in each subject addressed below.

1. **The second draft Assessment is still a biased document rather than a scientific report and does not follow a specific EPA prescribed guidance or methodology**.

USEPA has dropped the pretense of referring to the assessment as a Watershed Assessment (which it never was) and refers to the report as simply an "assessment." The Executive Summary (ES) states that the report follows the EPA's Ecological Risk Assessment (ERA) framework (ES-4, par. 2), but that framework is not reflected in its title and Abstract, which in fact implies that it is an Environmental Impact Assessment.

Although the Assessment claims to be an ERA, it does not follow the USEPA guidance (Application of Watershed Ecological Risk Assessment Methods to Watershed Management, USEPA/600/R-06/037F, March 2008) and fails to establish any clear goals or objectives, which are essential organizing concepts for an ERA that conforms to EPA's guidelines.[1]

2. **The Assessment fails to evaluate the spatial scales defined in the report.**

The Assessment distorts the scale of the hypothetical mine scenarios, and the associated hypothetical impacts, which results in a lack of critical context for its quantitative conclusions and misleads the reader regarding the significance of its findings.

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[1] U.S. EPA, Guidelines for Ecological Risk Assessment, EPA/630/R-95/002F, Washington, DC (Apr. 1998), *available at* www.epa.gov/raf/publications/guidelines-ecological-risk-assessment.htm., at 19.

Although the report claims to consider five spatial scales (pg 2-7), it does not attempt to assess any impacts at the Bristol Bay watershed scale. The Assessment also states that it focuses on the Nushagak and Kvichak River watersheds, but in fact it does not. No impacts to the Nushagak or Kvichak Rivers are identified related to normal mine operations. The only potential impacts to these rivers identified in the report relate to a tailings dam failure, despite acknowledging in the Abstract (p. i) that the failure of a tailings dam has a very low probability of occurring.

All the potential mining impacts discussed in the Assessment are at the Mine Scenario Watershed and Mine Scenario footprint scales, focusing largely on worst case scenarios and low probability events. All the impacts that EPA identifies at this scale represent 0.8% (Mine watershed) and 0.06% (Mine Max Scenario Footprint) of the Bristol Bay watershed (Table 2-1, pg 2-8).

The Assessment also describes impacts in terms of loss of stream channel length and wetlands areas, altered stream flows, and indirect impacts to streams and wetlands for various hypothetical mine scenarios. The Assessment does not, however, put these losses into any kind of perspective or characterize these habitats in terms of the proportion of the total resource base that they represent.

For example, the Assessment predicts the loss of 145 km of streams (under the Pebble 6.5 Scenario). The Assessment fails to explain that this loss represents only 0.3% of the 53,000 km of stream channel in the Nushagak and Kvichak watersheds, and even less in the entire Bristol Bay watershed. The predicted loss of anadromous fish habitat would be substantially less since the Assessment indicates that only 35 km of the 145 km of streams predicted to be lost under Pebble Scenario 6.5 are anadromous fish habitat.

The EPA should have included a comparative analysis at each of the five spatial scales comparing the quantity of anadromous fish habitat impacted with the total anadromous habitat available at each respective scale. This comparative analysis would quickly demonstrate that the impacted habitat is less than 1% of total habitat available at the Bristol Bay scale and possibly even at the Nushagak scale.

3. Although USEPA has included a new appendix on compensatory mitigation, no mitigation measures are incorporated into the assessment.

EPA provides a general overview of Compensatory Mitigation concepts (Appendix J) and basically concludes that sufficient compensation measures that could address impacts defined in the report do not exist. Several of the unsupported key assumptions within this appendix are clearly erroneous. For example, the Assessment:

- assumes that mitigation options located within the other watersheds throughout the Bristol Bay region would be excluded. This assumption about mitigation location, however, is contrary to standard practice in Alaska which addresses wetlands mitigation on a regional watershed basis.

- assumes that large-scale compensatory mitigation is unachievable for mining projects in the Bristol Bay region because there are few degraded wetlands to enhance or restore. In fact,

- preservation is the most common form of compensatory mitigation in Alaska and there are case studies that document the feasibility of large-scale preservation projects.

The Assessment's evaluation of compensatory mitigation has been conducted before PLP has submitted a formal Compensatory Mitigation Plan, a requirement of the permitting process. Other mitigation options not included within the seven options evaluated by the Assessment, would show that mitigation is possible. The Assessment's premature dismissal of effective mitigation is based on false assumptions and is indicative of the superficial

nature of the study. It appears to be an ill-informed attempt to supersede an essential step of the permitting process.

The Assessment is based on a hypothetical mine scenario that does not include avoidance, minimization, and mitigation methods. Development activities in wetlands and other water bodies are regulated through federal environmental laws and policies. This process outlines specific requirements to ensure the project addresses potential impacts to wetlands resources, including a requirement to offset those impacts through compensatory mitigation plans. Wetlands mitigation planning and protection and enhancement of fish habitat are related efforts and often focus on streamflow changes. Defining an acceptable, environmentally sound water management plan is but one of many requirements that must be met before approvals are granted to develop a project. The water management plan is usually founded on the protection, mitigation and/or enhancement of fish habitat. None of these critical aspects of development projects were incorporated in the Assessment's hypothetical scenario.

4. The Assessment still fails to incorporate state of the art mining practices and regulatory requirements.

The Assessment's authors assert that 'best practices' and modern practices have been used, and that reliance on data from some of the older sites (e.g. the Coeur D'Alene mines) has been eliminated, but the latest draft of the Assessment does not evidence that these necessary changes were actually made. The controls assumed in the Assessment do not reflect 'good practice.'

- Culvert failure rates still reference old data sets. Comments submitted on the first external draft pointed out that using this old data and data from dissimilar climate areas or ecosystems is inappropriate.

- The conclusions of substantial damage to streams and blockage of fish passage are predicated on the assumption of undersized and improperly installed culverts. Furthermore, the U.S. Fish and Wildlife Service's Fish Passage Program has shown that with appropriate modern designs, the probability of culvert failure can be dramatically reduced.

- Leakage during routine operations assumes no seepage control measures in place, a design that would not be permitted.

- The Assessment uses two dam failure scenarios – a partially full dam and a completely full dam. In the completely full dam scenario the TSF is completely full to the crest of the dam. This condition would violate the mine's permit – dams are required to maintain safe levels of freeboard.

- As with the tailings dam failure statistics, the dataset used for the pipeline failures determination is not representative of the state-of-the-practice design, monitoring and regulatory oversight that will be used for a mine project.

The report continues to evaluate alternatives that would not be permitted in today's regulatory environment; the document's alternatives do not adequately address impact mitigation (including avoidance) which would be required by Federal, State, and local agencies.

5. Stream flow impacts (habitat and fish loss) are based on unrealistic assumptions.

The document is overly focused on a hypothetical Pebble mine footprint. Furthermore, the direct impacts from the hypothetical mine footprint are routinely extended to encompass the indirect impacts longitudinally downstream (see analysis in section 7.2 Habitat Loss pgs. 7-15 thru 7-33). The EPA's lumping of direct and

indirect impacts into a cumulative estimate of stream reach loss is misleading. Its statement about the uniqueness of salmon stocks in the hypothetical mine area is completely unsupported. Its statement that those stocks are critical to the Bristol Bay salmon fishery is also completely unsupported. In fact, EPA apparently shies away from comparing those stocks with the number of salmon in the Bristol Bay fishery.

For example, EPA lumps indirect impacts to aquatic habitats such as reduced surface water flows, off-channel habitats, groundwater flow pathways into the same category as direct impacts associated with mine footprint. EPA ignores any attempts to evaluate indirect impacts across a continuum as risks diminish farther from the hypothetical mine. Rather, indirect impacts are treated as if they were direct impacts. This error is evident in the EPA's analysis of stream habitat losses, where the Assessment states, "A total of 8 km, 24 km and 35 km of documented anadromous fish streams would be eliminated, blocked, or dewatered by the mine footprints…." (P. 7-26). EPA is including indirect effects from dewatering into its estimate of the stream reach kilometers affected by the mine footprint.

Suggesting that the reaches directly affected by the hypothetical mine area are unique salmon stock that are critical to the future of the Bristol Bay fish populations is not supported by the Assessment or any other report. It appears to be an attempt to invoke a risk that has no factual basis.

6. **The Assessment uses flawed scenarios and assumptions for Closure and Post-Closure while disregarding bonding and regulatory requirements.**

In addition to the failure to incorporate modern construction standards and appropriate mitigation measures, the document continues to assume that a mine cannot be adequately closed. Some discussion of Alaska's bonding requirements has been added in a text box, but the text in Section 6.3 presumes that some closure issues will be unresolvable, implying that adequate bonding will not be available. It is unrealistic to assume that any mine with unresolvable closure issues would be permitted within the State of Alaska. The ability to successfully close a mine is a critical performance measure in the permitting process. Given the State of Alaska's permitting and bonding requirements, the assumed unresolvable closure issues are not realistic. These unrealistic assumptions affect the entire assessment: conclusions regarding effects of mine development on fish, wildlife, cultural resources, and water quality all assume long-term issues related to failure to adequately close the mine.

7. **The Assessment fails to provide a balanced perspective on subsistence use and socio-economic impacts of potential mining activities in the study area.**

Most of the Assessment's qualitative discussion focuses on the perceived negative impacts to subsistence use in terms of livelihoods, diet, and related cultural effects. The analysis ignores the positive benefits that responsible mineral development could deliver to this remote region, which has little developed infrastructure and services, and which has been suffering from out-migration and high unemployment for some time.

The Assessment goes on to speculate that changes in the occurrence and abundance of salmon have the potential to change animal behavior and reduce wildlife population abundances. It then goes on to state that "on a cultural level, a significant loss of salmon would result in negative stress on a culture that is highly reliant on this resource" (pg 12-13). The Assessment does not define "significant," but presumably a (high level) estimate of 0.2% loss, which in fact would be even smaller due to mitigation that will reduce this impact, would not be "significant."

By not providing an estimate of mine-related effects on fish populations, EPA is limited to pure speculation about potential impacts on wildlife and Native Alaskan cultures. An upper bound loss of 0.2% of the sockeye salmon population would have no measurable effect on wildlife or Native Alaska culture.

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8. **The qualitative assessment lacks a clear systematic methodology for robustly evaluating health impacts related to a major mine project scenario.**

The Assessment's treatment of potential impacts on Alaska Native cultures is deficient in that it lacks a baseline (i.e., pre-mine context) as a reference point for determining potential changes in human health at the community level. For instance, published public health data indicate that the Bristol Bay Region currently has high burdens of nutrition-related health problems (e.g., obesity and diabetes) and chronic diseases (e.g., heart disease and cancer) (UW's County Health Rankings, 2012; ANTHC, 2008). Furthermore, the Assessment uses an oversimplified pathway of health effects that ignores modifiable risk factors (such as alcohol use, smoking, lack of access to fresh vegetables, consumption of sugary beverages, etc.) that influence the health of the Native community. Without accounting for these confounding factors, EPA's assessment is inaccurate in asserting a high certainty for adverse human health effects (e.g., nutrition-related diseases) from the mine project scenario.

Conclusion

The Assessment largely ignores the scientific and technical comments received on the First External Draft report. Enclosed are the scientific and technical reviews on which this summary is based. They contain additional important points that I could not include in this letter, but that should be carefully considered before the Assessment is finalized. The final Assessment will not be scientifically credible if it continues to ignore this information.

We appreciate this opportunity to comment on the Assessment, and we hope that EPA will endeavor to correct the critical flaws in the second external review draft.

Respectfully submitted,

John Shively
Chief Executive Officer

Attachments:

Attachment 1	Environ International Corporation Review
Attachment 2	ERM Review Comments
Attachment 3	Knight Piésold Ltd. Review Comments
Attachment 4	HDR Inc., Review Comments